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The intersection of tech and accounting

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Using checklists might cause auditors to miss key risk factors, asserts SMU Associate Professor of Accounting Seow Poh Sun

WHEN deciding whether to give a firm a clean bill of health, auditors usually go through computer-generated checklists of risk factors to see if they have missed anything. But the use of such decision aids can backfire, says Singapore Management University (SMU) Associate Professor of Accounting (Education) and Associate Dean (Teaching and Curriculum) Seow Poh Sun.

"Sometimes humans get overconfident. People focus on things by which they are prompted. But they do not think about things for which there are no prompts," he opines.

"I understand why we want a structured, restrictive kind of environment. But let's not forget the biases we create."

Prof Seow was speaking about the research he published several years ago, which discussed the psychological biases at play in the computerised world of auditing. Today, he works in the space between accounting and technology.

He has done research on fraud analytics and recently gained recognition in the US for an award-winning mobile gaming application to teach financial accounting that he co-developed with a colleague.

"Accounting is tech-centric, you can't run away from that," he remarks.

The limitations of audit systems

Prof Seow's interest in accounting began on a practical note.

"Accounting was the fastest professional degree one could get. I appreciate how it has led me to acquire so many different skill sets," he says.

His specialisation in the accounting field is known as accounting information systems (AIS). The emergence of the AIS discipline arises from the application of information and communication technology in the accounting environment. It is an interdisciplinary field that combines information systems technology with the business world of accounting.

The research on the impact of overly-restrictive checklists on decision-making outcomes is relevant because processes across audit firms, including the Big Four, are all driven by computerised systems, Prof Seow asserts.

These so-called decision aids are used not just for checking whether a firm has the proper internal controls, but also to calculate certain outputs based on inputs, to sample a population, and to evaluate whether to accept a new client.

Companies use these systems to codify expert knowledge, to guide their staff to think like the experts.

"Audit firms develop their own systems. Some are more flexible, some are more restrictive," he reckons.

In an experiment, Prof Seow split participants up into those who used a more restrictive system – where the audit process was strict and flowed from one selected choice to others – and a more flexible one where a participant could zoom in and out of processes as well as change their sequences.

The systems were meant to find "correct" solutions to a task. Participants had to identify which kinds of internal controls were present or missing, using a computerised decision aid.

Prof Seow found that those who used the more flexible system might not have done as well in identifying internal controls that the more restrictive system would have prompted them to identify.

But they did not miss out many non-prompted-for controls, which those using a more restrictive system failed to identify. In other words, the results of the experiment show that people using a less restrictive system can better identify unanticipated risks. He says the experiment's outcome could be understood using psychology.

"Prompts activate links to one's long-term memory. The stronger the association, the more you will get out of the memory. But the process of accessing the memory interferes with the process of pulling out information that is not prompted for," Prof Seow explains.

"We humans always think that we can make the right decisions. But by using software, we might end up being supported to make less ideal decisions, and cannot think out of the box," he posits.

"Unless you keep updating your rules and things to look out for, you would miss out on new factors."

One solution to the problem is to have more discussions on what one could be missing, he adds.

Another solution is simply to have more experienced people around.

Research also shows that novice users of computer aids tend to follow what is suggested by the system, especially when the task at hand is complex. "At the end of the day, you want human expertise to come in," Prof Seow says.

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Singapore Management University (SMU) Associate Professor of Accounting (Education) Seow Poh Sun

Using big data to counter fraud

Sometimes, companies run into problems not because they have no internal controls.

Rather, fraud occurs because high-level staff act to override internal controls, for example, to make illegal payments.

The latest trend in Prof Seow's field is making use of advances in computing power to detect fraud, ideally before it happens.

"In the past, companies will have millions of journal entries. Auditors couldn't test everything, and had to get a sample to analyse. Now, you can easily go through every single transaction," he comments.

However, humans need to programme computers to look out for the right red flags, using what people know of the business and psychology. For example, transactions passed during certain hours on public holidays can be flagged for further investigation.

In this area, Prof Seow has conducted recent work with a team on mining a set of data for potentially suspicious transactions.

Various algorithms can be used, including one on the frequency of numbers beginning with a certain number in real-life data. For example, there is more than a 30 per cent chance that the number "1" appears as the leading digit in a number. The rule is known as Benford's Law.

Anomales can then be flagged.

"If anything above $5,000 needs to be signed by somebody else, somebody trying to get around it would post transactions of $4,999."

"There are also laws that look at the last few digits, say '999' or '000'. There is literature on how fraudsters tend to round up certain values," says Prof Seow.

Innovative teaching

Other than his research work, the professor, who wears the hat of the School of Accountancy's Associate Dean of Teaching and Curriculum, has also developed a mobile gaming application for students, to make learning financial accounting more fun.

The app, called SMU Accounting Challenge or ACE, is available for free on the iPhone, iPad or Android smart devices.

In there, students have to answer multiple choice questions on accounting concepts under time pressure. There are more than 1,000 questions that they can be tested on.

"Students come from a different generation today. They are on their phone all the time."

"Students also want more resources outside the classroom. They want something quick and competitive," Prof Seow surmises.

He and his colleague at the accounting school, senior lecturer Wong Suay Peng, spent half a year working out the content of the app, and launched it in 2013.

The app has since attracted 17,000 downloads worldwide, with top downloads coming from the US, Singapore, and the Philippines. He and Ms Wong were even awarded the 2015 Innovation in Accounting Education Award from the American Accounting Association (AAA) in September.

The award, sponsored by the Ernst and Young Foundation, was given to Prof Seow and Ms Wong to recognise their innovative teaching methods.

This was the first time that the AAA, a voluntary organisation founded in 1916 to promote worldwide excellence in accounting education, has given the award to professors of a university outside of America.

Students told Prof Seow that on their way to school, instead of staring out of a window, they can quickly play a few sessions.

"They enjoyed the game so much that they even sought and got funding to organise a competition for the game," he says.

Prof Seow teaches classes on accounting information systems as well as financial accounting.

"I always believe that the course content must be as relevant as possible so students will be more motivated to study. You cannot be theoretical."

"When I teach about controls and risks, I always show them many newspaper articles and cite real-world examples of how companies mismanaged their control systems. I also encourage them to share in class any relevant things about what we are studying."

"Ultimately, I believe if they can see the value and relevance of what they are studying, they will be more engaged," Prof Seow affirms.